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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/049,613	02/21/2002	Masatoshi Katayama	218877US2PCT	2566

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EXAMINER

WANG, QUAN ZHEN

ART UNIT	PAPER NUMBER
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2633

DATE MAILED: 01/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/049,613	KATAYAMA, MASATOSHI	
	Examiner	Art Unit	
	Quan-Zhen Wang	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kunikane et al. (U.S. Patent US 5,479,547).

Regarding claim 1, Kunikane discloses a data transmission system (fig. 15) including subscriber units (fig. 15, element 5 in home 2), the subscriber unit comprising a wavelength division multiplexer/demultiplexer (fig. 15, WDM in the subscriber unit 5) configured to eliminate a particular wavelength signal (fig 15, λ_2) from the subscriber unit (fig. 15, the subscriber unit 5).

Regarding claim 2, Kunikane teaches a wavelength division multiplexer/demultiplexer that is configured to reflect the particular wavelength signal to reject its input.

Regarding claim 3, Kunikane further teaches that the multiplexer/demultiplexer comprises a reflecting layer (fig. 3, reflecting layer 26) at an input end surface of an optical fiber of the subscriber unit.

Regarding claim 4, Kunikane further teaches that the reflecting layer comprises a dielectric multilayer filter (column 2, lines 49-50; and column 4, lines 47-48).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kunikane et al. (U.S. Patent US 5,479,547) in view of Rivoallan (U.S. Patent US 6,130,974).

Regarding claim 5, Kunikane differs from the claimed invention in that Kunikane does not specifically disclose that the system comprising an optical fiber with a core and a cladding that covers an external surface of the core, and that has multiple notched formed on the cladding to reflect the particular wavelength signal. However, it is well known in the art that an optical fiber with a core and a cladding that covers an external surface of the core, and that has multiple notched formed on the cladding to reflect the particular wavelength signal. For example, Rivoallan discloses an optical fiber (fig. 1) having a core (fig. 1, core 12) and a cladding (fig. 1, cladding 12) that covers the external surface of the core, and that has multiple notched formed on the cladding (fig. 1, Dmax and Dmin) to reflect a particular wavelength signal. Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a multi-notched optical fiber, such as the one taught by Rivoallan, in the

system of Kunikane in order to improve the efficiency to cut off a wavelength in addition to reflection by diffracting it away during transmission along the fiber.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kunikane et al. (U.S. Patent US 5,479,547) in view of Ellison et al. (U.S. Patent US 6,556,757).

Regarding claim 6, Kunikane differs from the claimed invention in that Kunikane does not specifically disclose that the wavelength division multiplexer/demultiplexer comprises an optical waveguide that is made of a polymer and absorbs a signal with a wavelength of 1650 nm, which is employed as the particular wavelength signal. However, Ellison et al. from the same field of endeavor teach an optical fiber made of a polymer (Column 2, line 26) and absorbs a signal with a wavelength of 1650 nm, which is employed as the particular wavelength (absorption about a dB per meter at 1650nm, Fig.7). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a fiber, such as the one disclosed by Ellison, for the fiber in the subscriber transmission system of Kunikane to obtain a further effective attenuation of a wavelength by absorbing it when it propagates in the core and polymeric cladding layers of the fiber in addition to diffracting and reflecting it.

6. Claims 7 and 8 are rejected under U.S.C. 103(a) as being unpatentable over Kunikane et al. (US Patent No: 5,479,547) in view of Feldman et al. (US Patent No: 6,577,414).

Regarding claim 7, Kunikane discloses a data transmission system (fig.15) including subscriber units (fig.15, unit 5 in home 2) configured to interconnect with and a central office unit (fig.15, combination of office 1 and distributor S) via optical fibers (fig.15, the fiber between S and subscriber unit 5), the central office unit is configured to multiplex a video signal (fig.15, video signal input to the central office 1; column 1, lines 50-51) with signals other than the video signal (column 1, line 45) to deliver them to the subscriber units (fig. 15, subscriber units 5 in home 2), wherein each subscriber unit is configured to demultiplex (fig. 15, WDM in subscriber units 5) a received signal; the subscriber units comprising a wavelength division multiplexer/demultiplexer (fig. 15, WDM in the subscriber units 5) configured to eliminate a particular wavelength signal (fig. 15, λ_2) from the subscriber unit (fig. 15, subscriber unit 5); the central office unit comprises an optical distributor (fig. 15, S) configured to distribute the video signal and supplying it to a wavelength division multiplexer/demultiplexer. The communication system of Kunikane differs from the claimed invention in that Kunikane does not specifically disclose that an optical amplifier is configured to amplify the video signal to be transmitted. However, an optical amplifier is well known in the art. For example, Feldman teaches using an optical amplifier (fig. 1, amplifiers 114 and 128) for amplifying the video signal to be transmitted. Therefore it would have been obvious to a person having ordinary skill in the art at the time of the invention to incorporate an optical amplifier, such as the one disclosed by Feldman, in the central office of the transmission system of Kunikane in order to increase the signal strength to further increase the transmission distance.

Regarding claim 8, Kunikane teaches a data transmission system (fig. 15) including subscriber units (fig. 15, subscriber unit 5 in home 2) configured to interconnect with and a central office unit (fig. 15, combination office 1 and distributor S) via optical fibers (fig. 15, the fiber between S and subscriber unit 5), the central office unit is configured to multiplex a video signal (fig. 15, video signal input to the central office 1; column 1, lines 50-51) with signals other than the video signal (column 1, line 45) to deliver them to the subscriber units (fig. 15, subscriber units 5 in home 2), wherein each subscriber unit is configured to demultiplex (fig. 15, WDM in subscriber units 5) a received signal; the subscriber units comprising a wavelength division multiplexer/demultiplexer (fig. 15, WDM in the subscriber units 5) configured to eliminate a particular wavelength signal (fig. 15, λ_2) from the subscriber unit (fig. 15, subscriber unit 5); an optical distributor (fig. 15, S) configured to distribute the video signal and supplying it to a wavelength division multiplexer/demultiplexer. The communication system of Kunikane differs from the claimed invention in that Kunikane does not specifically teach that the central office unit comprises a plurality of video signal generators configured to generate video signals with different wavelengths; a first wavelength division multiplexer/demultiplexer configured to multiplex the generated video signals; and an optical amplifier is configured to amplify the video signal to be transmitted and a plurality of video signal generators. However, Feldman teaches a central office unit that comprises a plurality of video signal generators for generating video signals with different wavelengths (fig. 5, λ_1 to λ_n ; column 2, lines 65-67 and column 3, lines 1-22); a first wavelength division multiplexer/demultiplexer (fig. 5, λ

MUX) for multiplexing the video signals supplied from said plurality of video signal generators; an optical amplifier (fig. 1, amplifier 128 and fig. 4, amplifier 437) for amplifying the video signal to be transmitted in a subscriber fiber-to-the-home CATV broadcast system (fig. 1, element 180). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate an optical amplifier, a plurality of video signal sources with different wavelengths and two wavelength division multiplexer/demultiplexers, such as those taught by Feldman, in the central office unit of the communication system of Kunikane in order to transmit video signals obtained from video signal sources with different wavelengths together with signal other than video signals to subscribers.

7. Claim 9 is rejected under U.S.C. 103(a) as being unpatentable over Kunikane et al. (US Patent No: 5,479,547) in view of Schmack et al. (US Patent No: 4,481,621).

Regarding claim 9, Kunikane discloses a data transmission system (fig.15) including subscriber units (fig.15, unit 5 in home 2) configured to interconnect with and a central office unit (fig.15, combination of office 1 and distributor S) via optical fibers (fig.15, the fiber between S and subscriber unit 5), the central office unit is configured to multiplex a video signal (fig.15, video signal input to the central office 1; column 1, lines 50-51) with signals other than the video signal (column 1, line 45) to deliver them to the subscriber units (fig. 15, subscriber units 5 in home 2), wherein each subscriber unit is configured to demultiplex (fig. 15, WDM in subscriber units 5) a received signal; the subscriber units comprising a second wavelength division multiplexer/demultiplexer (fig.

15, WDM in the subscriber units 5) configured to eliminate a particular wavelength signal (fig. 15, λ_2) from the subscriber unit (fig. 15, subscriber unit 5). The communication system of Kunikane differs from the claimed invention in that Kunikane does not teach that the subscriber unit comprises a first wavelength division multiplexer/demultiplexer configured to demultiplex the video signals and signals other than video signal. However, Schmack et al. from the same field of endeavor teach a subscriber unit (fig. 2) comprises of a wavelength division multiplexer/demultiplexer (fig. 2, BB-DMUX) for demultiplexing the video signals and signals other than video signal (fig. 2, BB-DMUX, TV, ST, SB; column 2, lines 60-67 and column 3, lines 1-3). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a to multiplexer/demultiplexers, such as the one taught by Schmack, in the communication system of Kunikane et al. in order for the received signals to be demultiplexed in the first multiplexer/demultiplexers into the original video signals and signals other than video signal before being sent to the second wavelength division multiplexer/demultiplexer of Kunikane in order to reduce crosstalk interference happening in between video signals and signals other than video signal.

Response to Arguments

8. Applicant's arguments filed November 7, 2005 have been fully considered but they are not persuasive.

Regarding claim 1, the applicant argues that the prior art Kunikane does not describe or suggest "a wavelength division multiplexer/demultiplexer configured to eliminate a particular wavelength signal from the subscriber unit". The Examiner respectfully disagrees with the Applicant. As it is clearly shown in fig. 15 of Kunikane, the multiplexer/demultiplexer (fig. 15, WDM) reject the particular signal I2 from the subscriber unit 5. In other words, Kunikane clearly discloses (in the drawing of prior art) that a particular signal (λ_2) is "eliminated" "from the subscriber unit" 5. Therefore, claim 1 is clearly anticipated by Kunikane and the rejections to claims 1-4 still stand.

For the same reasons, claims 5-9 are anticipated by the combinations of Kunikane and listed references. The rejections to claims 5-9 still stand.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan-Zhen Wang whose telephone number is (571) 272-3114. The examiner can normally be reached on 9:00 AM - 5:00 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

qzw
1/16/2006


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